

Mathematics A Very Short Introduction Timothy Gowers

Getting the books **Mathematics A Very Short Introduction Timothy Gowers** now is not type of inspiring means. You could not solitary going once books deposit or library or borrowing from your contacts to right to use them. This is an enormously easy means to specifically acquire guide by on-line. This online broadcast Mathematics A Very Short Introduction Timothy Gowers can be one of the options to accompany you in the manner of having other time.

It will not waste your time. how to me, the e-book will unquestionably impression you supplementary issue to read. Just invest tiny epoch to approach this on-line statement **Mathematics A Very Short Introduction Timothy Gowers** as competently as review them wherever you are now.

Symmetry: A Very Short Introduction - Ian Stewart 2013-05-30

Symmetry is an immensely important concept in mathematics and throughout the sciences. In this Very Short Introduction, Ian Stewart highlights the deep implications of symmetry and its important scientific applications across the entire subject.

The Pleasures of Counting - T. W. Körner 1996-12-05

What is the connection between the outbreak of cholera in Victorian Soho, the Battle of the Atlantic, African Eve and the design of anchors? One answer is that they are all examples chosen by Dr Tom Körner to show how a little mathematics can shed light on the world around us, and deepen our understanding of it. Dr Körner, an experienced author, describes a variety of topics which continue to interest professional mathematicians, like him. He does this using relatively simple terms and ideas, yet confronting difficulties (which are often the starting point for new discoveries) and avoiding condescension. If you have ever wondered what it is that mathematicians do, and how they go about it, then read on. If you are a mathematician wanting to explain to others how you spend your working days (and nights), then seek inspiration here.

Mathematics: A Very Short Introduction - Timothy Gowers 2002-08-22

The aim of this book is to explain, carefully but not technically, the differences between advanced, research-level mathematics, and the sort of mathematics we learn at school. The most fundamental differences are philosophical, and readers of this book will emerge with a clearer understanding of paradoxical-sounding concepts such as infinity, curved space, and imaginary numbers. The first few chapters are about general aspects of mathematical thought. These are followed by discussions of more specific topics, and the book closes with a chapter answering common sociological questions about the mathematical community (such as "Is it true that mathematicians burn out at the age of 25?") ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Applied Mathematics: A Very Short Introduction - Alain Goriely 2018-02-13

Mathematics is playing an increasing important role in society and the sciences, enhancing our ability to use models and handle data. While pure mathematics is mostly interested in abstract structures, applied mathematics sits at the interface between this abstract world and the world in which we live. This area of mathematics takes its nourishment from society and science and, in turn, provides a unified way to understand problems arising in diverse fields. This Very Short Introduction presents a compact yet comprehensive view of the field of applied mathematics, and explores its relationships with (pure) mathematics, science, and engineering. Explaining the nature of applied mathematics, Alain Goriely discusses its early achievements in physics and engineering, and its development as a separate field after World War II. Using historical examples, current applications, and challenges, Goriely illustrates the particular role that mathematics plays in the modern sciences today and its far-reaching potential. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

A Concise Introduction to Pure Mathematics - Martin Liebeck 2018-09-03

Accessible to all students with a sound background in high school mathematics, *A Concise Introduction to Pure Mathematics*, Fourth Edition presents some of the most fundamental and beautiful ideas in

pure mathematics. It covers not only standard material but also many interesting topics not usually encountered at this level, such as the theory of solving cubic equations; Euler's formula for the numbers of corners, edges, and faces of a solid object and the five Platonic solids; the use of prime numbers to encode and decode secret information; the theory of how to compare the sizes of two infinite sets; and the rigorous theory of limits and continuous functions. New to the Fourth Edition Two new chapters that serve as an introduction to abstract algebra via the theory of groups, covering abstract reasoning as well as many examples and applications New material on inequalities, counting methods, the inclusion-exclusion principle, and Euler's phi function Numerous new exercises, with solutions to the odd-numbered ones Through careful explanations and examples, this popular textbook illustrates the power and beauty of basic mathematical concepts in number theory, discrete mathematics, analysis, and abstract algebra. Written in a rigorous yet accessible style, it continues to provide a robust bridge between high school and higher-level mathematics, enabling students to study more advanced courses in abstract algebra and analysis.

The Mathematics of Life - Ian Stewart 2011-06-07

Biologists have long dismissed mathematics as being unable to meaningfully contribute to our understanding of living beings. Within the past ten years, however, mathematicians have proven that they hold the key to unlocking the mysteries of our world -- and ourselves. In *The Mathematics of Life*, Ian Stewart provides a fascinating overview of the vital but little-recognized role mathematics has played in pulling back the curtain on the hidden complexities of the natural world -- and how its contribution will be even more vital in the years ahead. In his characteristically clear and entertaining fashion, Stewart explains how mathematicians and biologists have come to work together on some of the most difficult scientific problems that the human race has ever tackled, including the nature and origin of life itself.

Cosmology: A Very Short Introduction - Peter Coles 2001-08-23

This book is a simple, non-technical introduction to cosmology, explaining what it is and what cosmologists do. Peter Coles discusses the history of the subject, the development of the Big Bang theory, and more speculative modern issues like quantum cosmology, superstrings, and dark matter. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

How I Wish I'd Taught Maths - Craig Barton 2018

Brought to an American audience for the first time, *How I Wish I'd Taught Maths* is the story of an experienced and successful math teacher's journey into the world of research, and how it has entirely transformed his classroom.

The History of Mathematics: A Very Short Introduction - Jacqueline Stedall 2012-02-23

Mathematics is a fundamental human activity that can be practised and understood in a multitude of ways; indeed, mathematical ideas themselves are far from being fixed, but are adapted and changed by their passage across periods and cultures. In this Very Short Introduction, Jacqueline Stedall explores the rich historical and cultural diversity of mathematical endeavour from the distant past to the present day. Arranged thematically, to exemplify the varied contexts in which people have learned, used, and handed on mathematics, she also includes illustrative case studies drawn from a range of times and places, including early imperial China, the medieval Islamic world, and nineteenth-century Britain. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the

perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Relativity: A Very Short Introduction - Russell Stannard 2008-07-24

100 years ago, Einstein's theory of relativity shattered the world of physics. Our comforting Newtonian ideas of space and time were replaced by bizarre and counterintuitive conclusions: if you move at high speed, time slows down, space squashes up and you get heavier; travel fast enough and you could weigh as much as a jumbo jet, be squashed thinner than a CD without feeling a thing - and live for ever. And that was just the Special Theory. With the General Theory came even stranger ideas of curved space-time, and changed our understanding of gravity and the cosmos. This authoritative and entertaining Very Short Introduction makes the theory of relativity accessible and understandable. Using very little mathematics, Russell Stannard explains the important concepts of relativity, from $E=mc^2$ to black holes, and explores the theory's impact on science and on our understanding of the universe. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Mathematics: A Very Short Introduction - Timothy Gowers 2002-08-22

The aim of this volume is to explain the differences between research-level mathematics and the maths taught at school. Most differences are philosophical and the first few chapters are about general aspects of mathematical thought.

A Doctor's Guide to Herbs and Supplements - Dr. Robert DiPaola, M.D. 2001-09-12

A scientific yet accessible guide to herbs, vitamins and minerals, co-written by a physician whose herbal therapy study was published in The New England Journal of Medicine. What was once considered alternative medicine has made its way into the mainstream; half of all Americans have tried some form of complementary medicine, and more than \$15 billion is spent annually on natural remedies. It is no surprise, then, that there's a tremendous amount of misinformation on the subject, leaving consumers searching for a solid and reliable book. A Doctor's Guide to Herbs and Supplements is that book, providing readers with the scientifically documented facts they need to make informed decisions about taking herbs and supplements. Based on up-to-date medical research, this comprehensive guide explains what these compounds are and demystifies how they do-or don't- work. At the heart of the book are A to Z entries for the 100 most commonly used medicinal herbs and nutritional supplements. Each entry details what the herb or supplement is, if and how it works, who shouldn't use it, and how it may interact with other medications. Focusing on consumer safety, Dr. DiPaola offers a checklist of questions anyone should ask before using a medicinal herb, including: *Am I currently taking a prescription medication? *Do I have any underlying medical conditions? *What does this label tell me? And what doesn't it say? An invaluable reference, A Doctor's Guide to Herbs and Supplements is the ideal choice for the busy consumer looking for a concise, user-friendly book about the most commonly used natural remedies and revitalizers.

Structural Engineering: A Very Short Introduction - David Blockley 2014-09-25

Have you ever wondered how it's possible to build a skyscraper, a big bridge, a jumbo jet, or a cruise liner? Everything has structure. Structure is the difference between a random pile of components and a fully functional object. Through structure the parts connect to make the whole. Natural structures vary from the very smallest part of an atom to the entire cosmology of the universe. Man-made structures include buildings, bridges, dams, ships, aeroplanes, rockets, trains, cars and fair-ground rides and all forms of artefacts, even large artistic sculptures. The wide range of different industries in which structural engineers work includes construction, transport, manufacturing, and aerospace. In this Very Short Introduction, David Blockley explores, in non-technical language, what structural engineering is all about, including examples ranging from the Shard in London and the Golden Gate Bridge in San Francisco to jumbo jets like the A380 and the Queen Elizabeth cruise liner. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis,

perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Artificial Intelligence: A Very Short Introduction - Margaret A. Boden 2018-08-13

The applications of Artificial Intelligence lie all around us; in our homes, schools and offices, in our cinemas, in art galleries and - not least - on the Internet. The results of Artificial Intelligence have been invaluable to biologists, psychologists, and linguists in helping to understand the processes of memory, learning, and language from a fresh angle. As a concept, Artificial Intelligence has fuelled and sharpened the philosophical debates concerning the nature of the mind, intelligence, and the uniqueness of human beings. In this Very Short Introduction, Margaret A. Boden reviews the philosophical and technological challenges raised by Artificial Intelligence, considering whether programs could ever be really intelligent, creative or even conscious, and shows how the pursuit of Artificial Intelligence has helped us to appreciate how human and animal minds are possible. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

The Princeton Companion to Mathematics - Timothy Gowers 2010-07-18

This is a one-of-a-kind reference for anyone with a serious interest in mathematics. Edited by Timothy Gowers, a recipient of the Fields Medal, it presents nearly two hundred entries, written especially for this book by some of the world's leading mathematicians, that introduce basic mathematical tools and vocabulary; trace the development of modern mathematics; explain essential terms and concepts; examine core ideas in major areas of mathematics; describe the achievements of scores of famous mathematicians; explore the impact of mathematics on other disciplines such as biology, finance, and music--and much, much more. Unparalleled in its depth of coverage, The Princeton Companion to Mathematics surveys the most active and exciting branches of pure mathematics. Accessible in style, this is an indispensable resource for undergraduate and graduate students in mathematics as well as for researchers and scholars seeking to understand areas outside their specialties. Features nearly 200 entries, organized thematically and written by an international team of distinguished contributors. Presents major ideas and branches of pure mathematics in a clear, accessible style. Defines and explains important mathematical concepts, methods, theorems, and open problems. Introduces the language of mathematics and the goals of mathematical research. Covers number theory, algebra, analysis, geometry, logic, probability, and more. Traces the history and development of modern mathematics. Profiles more than ninety-five mathematicians who influenced those working today. Explores the influence of mathematics on other disciplines. Includes bibliographies, cross-references, and a comprehensive index. Contributors include: Graham Allan, Noga Alon, George Andrews, Tom Archibald, Sir Michael Atiyah, David Aubin, Joan Bagaria, Keith Ball, June Barrow-Green, Alan Beardon, David D. Ben-Zvi, Vitaly Bergelson, Nicholas Bingham, Béla Bollobás, Henk Bos, Bodil Branner, Martin R. Bridson, John P. Burgess, Kevin Buzzard, Peter J. Cameron, Jean-Luc Chabert, Eugenia Cheng, Clifford C. Cocks, Alain Connes, Leo Corry, Wolfgang Coy, Tony Crilly, Serafina Cuomo, Mihalis Dafermos, Partha Dasgupta, Ingrid Daubechies, Joseph W. Dauben, John W. Dawson Jr., Francois de Gandt, Persi Diaconis, Jordan S. Ellenberg, Lawrence C. Evans, Florence Fasanelli, Anita Burdman Feferman, Solomon Feferman, Charles Fefferman, Della Fenster, José Ferreirós, David Fisher, Terry Gannon, A. Gardiner, Charles C. Gillispie, Oded Goldreich, Catherine Goldstein, Fernando Q. Gouvêa, Timothy Gowers, Andrew Granville, Ivor Grattan-Guinness, Jeremy Gray, Ben Green, Ian Grojnowski, Niccolò Guicciardini, Michael Harris, Ulf Hashagen, Nigel Higson, Andrew Hodges, F. E. A. Johnson, Mark Joshi, Kiran S. Kedlaya, Frank Kelly, Sergiu Klainerman, Jon Kleinberg, Israel Kleiner, Jacek Klinowski, Eberhard Knobloch, János Kollár, T. W. Körner, Michael Krivelevich, Peter D. Lax, Imre Leader, Jean-François Le Gall, W. B. R. Lickorish, Martin W. Liebeck, Jesper Lützen, Des MacHale, Alan L. Mackay, Shahn Majid, Lech Maligranda, David Marker, Jean Mawhin, Barry Mazur, Dusa McDuff, Colin McLarty, Bojan Mohar, Peter M. Neumann, Catherine Nolan, James Norris, Brian Osserman, Richard S. Palais, Marco Panza, Karen Hunger Parshall, Gabriel P. Paternain, Jeanne Peiffer, Carl Pomerance, Helmut Pulte, Bruce Reed, Michael C. Reed, Adrian Rice, Eleanor Robson, Igor Rodnianski, John Roe, Mark Ronan, Edward Sandifer, Tilman Sauer,

Norbert Schappacher, Andrzej Schinzel, Erhard Scholz, Reinhard Siegmund-Schultze, Gordon Slade, David J. Spiegelhalter, Jacqueline Stedall, Arild Stubhaug, Madhu Sudan, Terence Tao, Jamie Tappenden, C. H. Taubes, Rüdiger Thiele, Burt Totaro, Lloyd N. Trefethen, Dirk van Dalen, Richard Weber, Dominic Welsh, Avi Wigderson, Herbert Wilf, David Wilkins, B. Yandell, Eric Zaslow, Doron Zeilberger
Mathematics - Morris Kline 1982

Refuting the accepted belief that mathematics is exact and infallible, the author examines the development of conflicting concepts of mathematics and their implications for the physical, applied, social, and computer sciences

Comedy: A Very Short Introduction - Matthew Bevis 2013

With a broad scope across the millennia, from high literature to popular culture, between page and stage and screen, this Very Short Introduction considers comedy not only as a literary genre, but also as a broader impulse at work in many other historical and contemporary forms of satire, parody, and play.

Astrophysics: A Very Short Introduction - James Binney 2016-03-24

Astrophysics is the physics of the stars, and more widely the physics of the Universe. It enables us to understand the structure and evolution of planetary systems, stars, galaxies, interstellar gas, and the cosmos as a whole. In this Very Short Introduction, the leading astrophysicist James Binney shows how the field of astrophysics has expanded rapidly in the past century, with vast quantities of data gathered by telescopes exploiting all parts of the electromagnetic spectrum, combined with the rapid advance of computing power, which has allowed increasingly effective mathematical modelling. He illustrates how the application of fundamental principles of physics - the consideration of energy and mass, and momentum - and the two pillars of relativity and quantum mechanics, has provided insights into phenomena ranging from rapidly spinning millisecond pulsars to the collision of giant spiral galaxies. This is a clear, rigorous introduction to astrophysics for those keen to cut their teeth on a conceptual treatment involving some mathematics.

ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable

Trigonometry: a Very Short Introduction - Glen Van Brummelen
2020-01-23

Born of the desire to understand the workings of motions of the heavenly bodies, trigonometry gave the ancient Greeks the ability to predict their futures. Most of what we see of the subject in school comes from these heavenly origins; 15th century astronomer Regiomontanus called it "the foot of the ladder to the stars." In this Very Short Introduction Glen Van Brummelen shows how trigonometry connects mathematics to science, and has today become an indispensable tool in predicting cyclic patterns like animal populations and ocean tides. Its historical journey through major cultures such as medieval India and the Islamic World has taken it through disciplines such as geography and even religious practice.

Trigonometry has also been a major player in the most startling mathematical developments of the modern world. Its interactions with the concept of infinity led to Taylor and Fourier series, some of the most practical tools of modern science. The birth of complex numbers led to a shocking union of exponential and trigonometric functions, creating the most beautiful formulas and powerful modelling tools in science. Finally, as Van Brummelen shows, trigonometry allows us to explore the strange new worlds of non-Euclidean geometries, opening up bizarre possibilities for the shape of space itself. And indeed, one of those new geometries - spherical - takes us full circle back to ancient Greek astronomers and European navigators, who first used it to chart their ways across the heavens and the earth. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Infinity - Ian Stewart 2017

Infinity is an intriguing topic, with connections to religion, philosophy, metaphysics, logic, and physics as well as mathematics. Its history goes back to ancient times, with especially important contributions from Euclid, Aristotle, Eudoxus, and Archimedes. The infinitely large (infinite) is intimately related to the infinitely small (infinitesimal). Cosmologists consider sweeping questions about whether space and time are infinite.

Philosophers and mathematicians ranging from Zeno to Russell have posed numerous paradoxes about infinity and infinitesimals. Many vital areas of mathematics rest upon some version of infinity. The most obvious, and the first context in which major new techniques depended on formulating infinite processes, is calculus. But there are many others, for example Fourier analysis and fractals. In this Very Short Introduction, Ian Stewart discusses infinity in mathematics while also drawing in the various other aspects of infinity and explaining some of the major problems and insights arising from this concept. He argues that working with infinity is not just an abstract, intellectual exercise but that it is instead a concept with important practical everyday applications, and considers how mathematicians use infinity and infinitesimals to answer questions or supply techniques that do not appear to involve the infinite. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

A Student's Guide to the Schrödinger Equation - Daniel A. Fleisch
2020-02-20

A clear guide to the key concepts and mathematical techniques underlying the Schrödinger equation, including homework problems and fully worked solutions.

Statistics: A Very Short Introduction - David J. Hand 2008-10-23

Modern statistics is very different from the dry and dusty discipline of the popular imagination. In its place is an exciting subject which uses deep theory and powerful software tools to shed light and enable understanding. And it sheds this light on all aspects of our lives, enabling astronomers to explore the origins of the universe, archaeologists to investigate ancient civilisations, governments to understand how to benefit and improve society, and businesses to learn how best to provide goods and services. Aimed at readers with no prior mathematical knowledge, this Very Short Introduction explores and explains how statistics work, and how we can decipher them. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

What is Mathematics? - Herbert Robbins Richard Courant (Ian Stewart)
1996

A discussion of fundamental mathematical principles from algebra to elementary calculus designed to promote constructive mathematical reasoning.

Makers of Mathematics - Stuart Hollingdale 2014-06-10

Each chapter of this accessible portrait of the evolution of mathematics examines the work of an individual — Archimedes, Descartes, Newton, Einstein, others — to explore the mathematics of his era. 1989 edition.

Physics: A Very Short Introduction - Sidney Perkowitz 2019-07-25

Physics, the fundamental science of matter and energy, encompasses all levels of nature from the subatomic to the cosmic, and underlies much of the technology around us. Understanding the physics of our universe is an essential aspect of humanity's quest to understand our environment and our place within it. Doing physics enables us to explore the interaction between environment and human society, and can help us to work towards the future sustainability of the planet. This Very Short Introduction provides an overview of how this pervasive science came to be and how it works: who funds it, how physicists are trained and how they think, and how physics supports the technology we all use. Sidney Perkowitz presents the theories and outcomes of pure and applied physics from ideas of the Greek natural philosophers to modern quantum mechanics, cosmology, digital electronics and energy production.

Considering its most consequential experiments, including recent results in elementary particles, gravitational waves and materials science, he also discusses outside the lab, the effects of physics on society, culture, and humanity's vision of its place in the universe. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Why Is There Philosophy of Mathematics At All? - Ian Hacking
2014-01-30

This truly philosophical book takes us back to fundamentals - the sheer

experience of proof, and the enigmatic relation of mathematics to nature. It asks unexpected questions, such as 'what makes mathematics mathematics?', 'where did proof come from and how did it evolve?', and 'how did the distinction between pure and applied mathematics come into being?' In a wide-ranging discussion that is both immersed in the past and unusually attuned to the competing philosophical ideas of contemporary mathematicians, it shows that proof and other forms of mathematical exploration continue to be living, evolving practices - responsive to new technologies, yet embedded in permanent (and astonishing) facts about human beings. It distinguishes several distinct types of application of mathematics, and shows how each leads to a different philosophical conundrum. Here is a remarkable body of new philosophical thinking about proofs, applications, and other mathematical activities.

Mathematics Form and Function - Saunders MacLane 2012-12-06

This book records my efforts over the past four years to capture in words a description of the form and function of Mathematics, as a background for the Philosophy of Mathematics. My efforts have been encouraged by lectures that I have given at Heidelberg under the auspices of the Alexander von Humboldt Stiftung, at the University of Chicago, and at the University of Minnesota, the latter under the auspices of the Institute for Mathematics and Its Applications. Jean Benabou has carefully read the entire manuscript and has offered incisive comments. George Glauberman, Carlos Kenig, Christopher Mulvey, R. Narasimhan, and Dieter Puppe have provided similar comments on chosen chapters. Fred Linton has pointed out places requiring a more exact choice of wording. Many conversations with George Mackey have given me important insights on the nature of Mathematics. I have had similar help from Alfred Aeppli, John Gray, Jay Goldman, Peter Johnstone, Bill Lawvere, and Roger Lyndon. Over the years, I have profited from discussions of general issues with my colleagues Felix Browder and Melvin Rothenberg. Ideas from Tammo Tom Dieck, Albrecht Dold, Richard Lashof, and Ib Madsen have assisted in my study of geometry. Jerry Bona and B.L. Foster have helped with my examination of mechanics. My observations about logic have been subject to constructive scrutiny by Gert Müller, Marian Boykan Pour-El, Ted Slaman, R. Voevodou, Volker Weispfennig, and Hugh Woodin.

An Invitation to Mathematics - Dierk Schleicher 2011-05-19

This Invitation to Mathematics consists of 14 contributions, many from the world's leading mathematicians, which introduce the readers to exciting aspects of current mathematical research. The contributions are as varied as the personalities of active mathematicians, but together they show mathematics as a rich and lively field of research. The contributions are written for interested students at the age of transition between high school and university who know high school mathematics and perhaps competition mathematics and who want to find out what current research mathematics is about. We hope that it will also be of interest to teachers or more advanced mathematicians who would like to learn about exciting aspects of mathematics outside of their own work or specialization. Together with a team of young "test readers", editors and authors have taken great care, through a substantial "active editing" process, to make the contributions understandable by the intended readership.

Solving Mathematical Problems - Terence Tao 2006-07-28

Authored by a leading name in mathematics, this engaging and clearly presented text leads the reader through the tactics involved in solving mathematical problems at the Mathematical Olympiad level. With numerous exercises and assuming only basic mathematics, this text is ideal for students of 14 years and above in pure mathematics.

Algebra: A Very Short Introduction - Peter M. Higgins 2015-10-22

Algebra marked the beginning of modern mathematics, moving it beyond arithmetic, which involves calculations featuring given numbers, to problems where some quantities are unknown. Now, it stands as a pillar of mathematics, underpinning the quantitative sciences, both social and physical. This Very Short Introduction explains algebra from scratch. Over the course of ten logical chapters, Higgins offers a step by step approach for readers keen on developing their understanding of algebra. Using theory and example, he renews the reader's acquaintance with school mathematics, before taking them progressively further and deeper into the subject. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Intelligence: A Very Short Introduction - Ian J. Deary 2001-02-22

People value their powers of thinking and most of us are interested in why some people seem to drive a highly tuned Rolls Royce brain while others potter along with a merely serviceable Ford Fiesta. This Very Short Introduction describes what psychologists have discovered about how and why people differ in their thinking powers. The book takes readers from no knowledge about the science of human intelligence to a stage where they are able to make judgements for themselves about some of the key questions about human mental ability differences. Each chapter deals with a central issue that is both scientifically lively and of considerable general interest, and is structured around a diagram which is explained in the course of the chapter. The issues discussed include whether there are several different types of intelligence, whether intelligence differences are caused by genes or the environment, the biological basis of intelligence differences, and whether intelligence declines or increases as we grow older. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Linear Algebra - Ward Cheney 2012

Ward Cheney and David Kincaid have developed Linear Algebra: Theory and Applications, Second Edition, a multi-faceted introductory textbook, which was motivated by their desire for a single text that meets the various requirements for differing courses within linear algebra. For theoretically-oriented students, the text guides them as they devise proofs and deal with abstractions by focusing on a comprehensive blend between theory and applications. For application-oriented science and engineering students, it contains numerous exercises that help them focus on understanding and learning not only vector spaces, matrices, and linear transformations, but uses of software tools available for use in applied linear algebra. Using a flexible design, it is an ideal textbook for instructors who wish to make their own choice regarding what material to emphasize, and to accentuate those choices with homework assignments from a large variety of exercises, both in the text and online.

Numbers: A Very Short Introduction - Peter M. Higgins 2011-02-24

In this Very Short Introduction Peter M. Higgins presents an overview of the number types featured in modern science and mathematics. Providing a non-technical account, he explores the evolution of the modern number system, examines the fascinating role of primes, and explains their role in contemporary cryptography.

The Math Book - Clifford A. Pickover 2009

This book covers 250 milestones in mathematical history, beginning millions of years ago with ancient "ant odometers" and moving through time to our modern-day quest for new dimensions.

Newton - Rob Iliffe 2007-01-25

Newton's contributions to an understanding of the heavens and the earth are considered to be unparalleled. This very short introduction explains his scientific theories, and uses Newton's unpublished writings to paint a picture of an extremely complex man whose beliefs had a huge impact on Europe's political, intellectual, and religious landscape.

Chemistry: A Very Short Introduction - Peter Atkins 2015-02-26

Most people remember chemistry from their schooldays as largely incomprehensible, a subject that was fact-rich but understanding-poor, smelly, and so far removed from the real world of events and pleasures that there seemed little point, except for the most introverted, in coming to terms with its grubby concepts, spells, recipes, and rules. Peter Atkins wants to change all that. In this Very Short Introduction to Chemistry, he encourages us to look at chemistry anew, through a chemist's eyes, in order to understand its central concepts and to see how it contributes not only towards our material comfort, but also to human culture. Atkins shows how chemistry provides the infrastructure of our world, through the chemical industry, the fuels of heating, power generation, and transport, as well as the fabrics of our clothing and furnishings. By considering the remarkable achievements that chemistry has made, and examining its place between both physics and biology, Atkins presents a fascinating, clear, and rigorous exploration of the world of chemistry - its structure, core concepts, and exciting contributions to new cutting-edge technologies. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Cryptography: A Very Short Introduction - Fred Piper 2002-05-30

This book is a clear and informative introduction to cryptography and data protection - subjects of considerable social and political importance. It explains what algorithms do, how they are used, the risks associated with using them, and why governments should be concerned. Important areas are highlighted, such as Stream Ciphers, block ciphers, public key algorithms, digital signatures, and applications such as e-commerce. This book highlights the explosive impact of cryptography on modern society, with, for example, the evolution of the internet and the introduction of more sophisticated banking methods. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Number Theory - Robin Wilson 2020

Number theory is the branch of mathematics primarily concerned with the counting numbers, especially primes. It dates back to the ancient Greeks, but today it has great practical importance in cryptography, from credit card security to national defence. This book introduces the main areas of number theory, and some of its most interesting problems.

Robotics: A Very Short Introduction - Alan Winfield 2012-09-27

Robotics is a key technology in the modern world. Robots are a well-established part of manufacturing and warehouse automation, assembling cars or washing machines, and, for example, moving goods to and from storage racks for Internet mail order. More recently robots have taken their first steps into homes and hospitals, and seen spectacular success in planetary exploration. Yet, despite these successes, robots have failed to live up to the predictions of the 1950s

and 60s, when it was widely thought - by scientists and engineers as well as the public - that by turn of the 21st century we would have intelligent robots as butlers, companions, or co-workers. This Very Short Introduction explains how it is that robotics can be both a success story and a disappointment, how robots can be both ordinary and remarkable, and looks at their important developments in science and their applications to everyday life. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Journey Through Genius - William Dunham 1991-08

Like masterpieces of art, music, and literature, great mathematical theorems are creative milestones, works of genius destined to last forever. Now William Dunham gives them the attention they deserve. Dunham places each theorem within its historical context and explores the very human and often turbulent life of the creator — from Archimedes, the absentminded theoretician whose absorption in his work often precluded eating or bathing, to Gerolamo Cardano, the sixteenth-century mathematician whose accomplishments flourished despite a bizarre array of misadventures, to the paranoid genius of modern times, Georg Cantor. He also provides step-by-step proofs for the theorems, each easily accessible to readers with no more than a knowledge of high school mathematics. A rare combination of the historical, biographical, and mathematical, Journey Through Genius is a fascinating introduction to a neglected field of human creativity. "It is mathematics presented as a series of works of art; a fascinating lingering over individual examples of ingenuity and insight. It is mathematics by lightning flash." —Isaac Asimov